



PATENT APPLICATION

IN THE U.S. PATENT AND TRADEMARK OFFICE

July 9, 2003

Applicant(s) Steven J. CARPENTER

Title : VIBRATORY FINISHER WITH BLASTING NOZZLE

Serial No. : 10/053 236

Group: 3723

Confirmation No.: 8294

Filed : November 9, 2001

Examiner: E. Morgan

Atty. Docket No.: Roto-Finish Case 56A

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

 **COPY**

Sir:

Herewith is an amendment in the above-identified application.

☒ Applicant claims small entity status. See 37 CFR 1.27.☐ The additional filing fee has been calculated as shown below:

For	No. Filed	No. Extra	() LG Entity	RATE	(X) SM Entity	Fee
Basic Fee				\$750.00	\$375.00	\$0.00
Total Claims	(18 - 20 = 0)		x \$ 18.00		x \$ 9.00	0.00
Indep. Claims	(2 - 3 = 0)		x \$ 84.00		x \$ 42.00	0.00
<input type="checkbox"/> Multiple Dep. Claim			+ \$280.00		+ \$140.00	0.00
* * * TOTAL FILING FEE * * *						\$ 0.00

☒ Pursuant to 37 CFR 1.136(a), please extend the shortened period for response by one month(s). The extension fee is: \$55.00.☒ A Check for \$55.00 is enclosed to cover fees.☒ Please credit any overpayment, or charge any additional filing fee required under 37 CFR 1.16 or 1.17 by this communication, to Deposit Account No. 06-1382. A duplicate copy of this sheet is enclosed.

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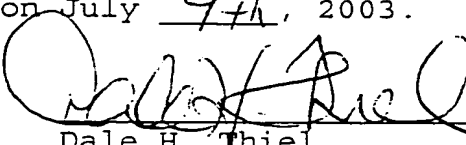
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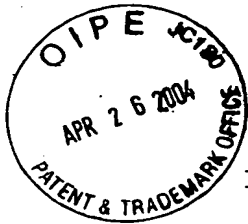
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For: VIBRATORY FINISHER WITH BLASTING NOZZLE

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International Application No.: N/A

International Filing Date: N/A

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

Sir:

In response to the Office Action dated March 11, 2003,
please amend the above-identified application as follows:

(Please see following pages.)

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AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0001] with the following rewritten paragraph:

---This is a continuation-in-part of copending application Serial No. 09/732 794 filed December 8, 2000, now abandoned, which ~~application relates to and incorporates therein, in its entirety, the subject matter of U.S.A. Provisional Application Serial No. 60/211 641 filed June 14, 2000~~ application claims priority under 35 USC §119(e) of copending provisional application Serial No. 60/211 641, filed June 14, 2000, the entire disclosure of which is herein incorporated by reference.---

Please replace paragraph [0046] with the following rewritten paragraph.

---In operation of the apparatus 11, the vibratory or gyratory movement of the tub 13 causes the bulk part mass 37 to undergo a gentle rotary tumbling movement in a direction which is generally transverse to the lengthwise extent of the channel 15, which transverse tumbling is significantly aided by the partial rounded cross section of the channel. Simultaneous with this transverse rotary tumbling of the parts, the flowable mass 37 is also slowly advanced in the lengthwise or longitudinal direction of the channel. The flowing mass 37 hence has a gentle tumbling movement which has a configuration which roughly corresponds to a helical or corkscrew-like movement, such being diagrammatically indicated at 46 in Figure 6. With this arrangement, movement of the flowing bulk mass along the elongate treating channel 15 hence causes the individual parts which make up the flowable bulk mass to be tumbled in a generally circular pattern transversely of the track through numerous revolutions or convolutions 50 simultaneous with the longitudinal advancement of the mass, and hence longitudinal advancement of the individual parts, in the lengthwise extent of the track. As the gently and slowly tumbling bulk mass 36 moves into and thence through the spray zone defined below the blasting



nozzle arrangement 31, the individual parts hence are undergoing a transverse rotary tumbling movement simultaneous with a slow longitudinal advancing movement through the spray zone, and in doing so the parts are undergoing a constantly changing orientation as they move through the blasting zone, thereby providing exposure of substantially all of the part surfaces to the blasting zone as the parts tumble slowly therethrough.---

Please replace paragraph [0047] with the following rewritten paragraph.

---In the process and apparatus of this invention, the treating channel is preferably of narrow width, which width in the cross section illustrated in Figure 5 occurs at the diameter of the rounded bottom wall as indicated at W. This narrow width is preferably in the range of about four inches to about eight inches, although in some situations may be as large as about twelve inches. This small width and the preferred use of the substantially semi-circular rounded bottom wall of the channel hence permits the bulk mass as it flows with a spiral or corkscrew-like tumbling motion along the channel to generate a large number of transverse convolutions or loops 50 which are positioned in closely adjacent relationship lengthwise of the channel. That is, the "lead" S (i.e., the forward advance per convolution, or the spacing between the centers of adjacent convolutions) of the corkscrew-like motion is small. As illustrated in Figure 6, the lead S is significantly smaller than the width W of the channel 15. This ~~can-cause~~causes increased part-to-part contact within the flowing mass and, more significantly, increases the exposure of the parts to the blasting spray as the mass moves through the blasting zone, as discussed below.---

Please replace paragraph [0048] with the following rewritten paragraph.

---The narrow width of the channel also enables the blasting spray to be positioned close to the upper surface of



the flowing mass (i.e., preferably within about two to about four inches) while at the same time allowing the spray pattern where it contacts the flowing mass to preferably extend across at least a majority of the width thereof, as shown in Figure 5, with the spray contacting the mass over a similar distance in the lengthwise direction of the channel. At the same time, the high velocity of the discharged spray enables it to penetrate downwardly into the porous flowing mass through a significant extent, thereby concentrating the energy of the abrasive spray over a small volume within the flowing mass so that the abrasive particles are able to rebound or bounce off the parts and the channel wall so as to increase the abrasive activity within the flowing mass.---

Please replace paragraph [0050] with the following rewritten paragraph.

---In addition, these relations coupling with the vibration imposed on the device provides the corkscrew motion with a lead S (i.e., lengthwise advancement per convolution) which is less than the lengthwise extent of the spray zone, with the lead preferably providing one, as a minimum, to about one and one-half convolutions 50 of the flowing mass being exposed to the blasting spray within the blasting zone. This hence ensures that substantially all parts pass into and through the spray zone during a single passage of the mass through the spray zone. This is particularly desirable to permit a substantially continuous treating process and specifically a first-in first-out process.---